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Injuries and accidents in people aged 70 and over

The World Health Organization (WHO) defines injury as "a bodily lesion resulting from acute overexposure to energy (this can be mechanical, thermal, electrical, chemical or radiant) interacting with the body in amounts or rates that exceed the threshold of physiological tolerance. In some case an injury results from an insufficiency of vital elements, such as oxygen" [1].

This fact sheet provides an overview of unintentional injuries among people aged 70 and over recorded in the RETRACE injury surveillance system from 2013 to 2020. The figures are national estimates and refer to residents unless otherwise specified. Data presented in the international section also include cases of intentional injuries and of unknown intent.

Injury treated in hospital emergency departments

Between 2013 and 2020, 52 860 emergency department visits for injury were recorded among people aged 70 and over, of which 51 289 involved residents. This figure represents 10.6% of all injury treatments across the four hospital centres in Luxembourg.

During the COVID-19 pandemic in 2020, non-urgent procedures were postponed in hospitals in Luxembourg. The total number of emergency visits (for all reasons) also decreased throughout 2020 compared to 2019. However, older adults continued to seek emergency care, with no observed decline. This is likely due to the severity of their injuries, often complicated by pre-existing health conditions, requiring urgent care.

For the period 2013–2020, the average incidence rate[1] of injury among people aged 70 and over is estimated at 110.2 per 1 000 inhabitants, compared with 73.4 per 1 000 among those aged 25–69. From the age of 60, women have an incidence rate 1.4 times higher than that of men (94.7 vs. 68.4 per 1 000 inhabitants), partly related to their longer life expectancy (Figure 1).

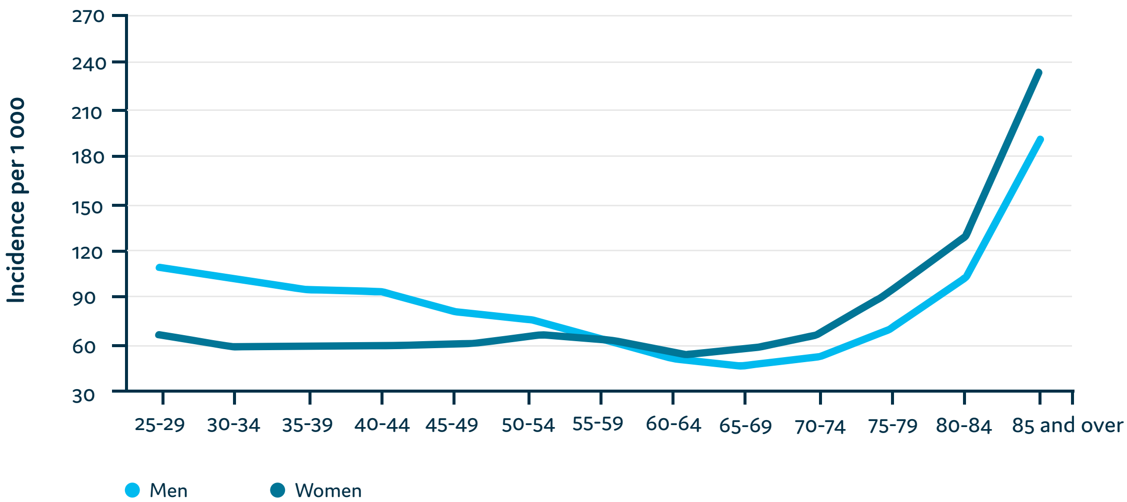

Figure 1 – Estimated incidence rate of injury per 1 000 inhabitants, by sex and age group, 2013–2020 (262 305* residents aged 25 and over, including 51 287 aged 70 and over)
Source: RETRACE
*Note that age or sex is missing for 108 cases

[1] For the complete methodology and the definitions of the terms, see the "Rapport sur les tendances des Traumatismes et Accidents au Luxembourg - Analyse des données 2013–2020 des urgences hospitalières RETRACE et du Registre des causes de décès".

Hospitalisations following injury

The hospitalisation rate following injury increases rapidly with age from 60 years onward (Figure 2).
For the period 2013–2020, it is estimated at 25.7% among residents and non-residents aged 70 and over. This rate is substantially higher than the hospitalisation rate for injury in the general population (6.3%) and among people aged 25–69 years (5.2%).

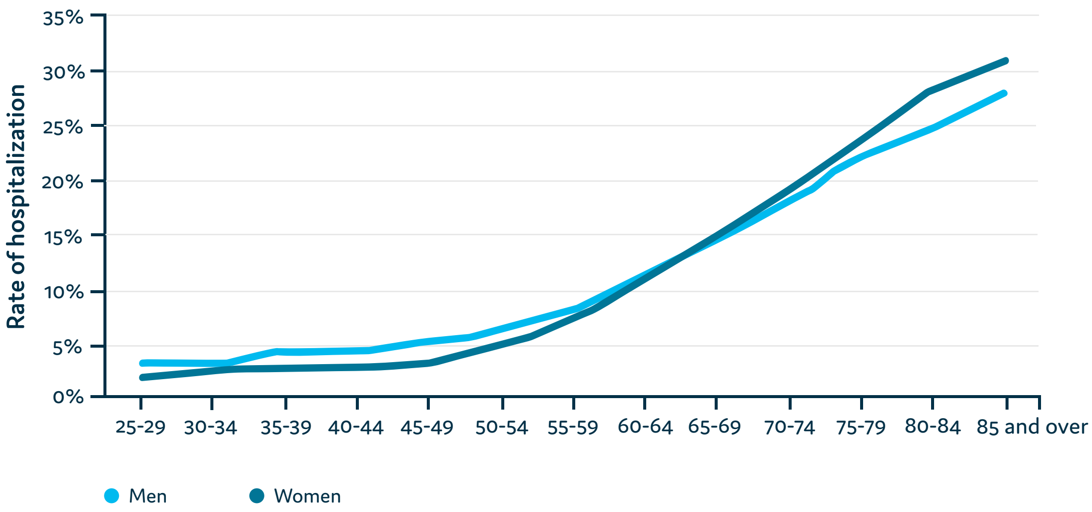

Figure 2 – Hospitalisation rate following injury, by sex and age group among residents and non-residents, 2013–2020 (308 916* people aged 25 and over, including 52,857 aged 70 and over)
Source: RETRACE
*Note that age, sex, or hospitalisation status missing for 1 880 cases

Falls at home: the most frequent accidents among older adults

For the period 2013–2020, 50.7% of injury cases among people aged 70 and over occurred at home, 16.7% in other locations such as nursing or retirement homes, 7.7% in public roads, and 24.9% in unspecified locations.
Falls account for 83.1% of traumatic events in this population. Their proportion increases with age, from 70.9% among those aged 70–74 to 90.5% among those aged 85 and over.

Activities at the time of falls

According to data collected at the CHL, when known, elderly people most commonly fall during personal hygiene care (15.8%) or while sleeping, for example by falling out of bed (8.9%)

The type of activity varies by location. Falls during personal hygiene are more frequent in residential institutions than at home, whereas falls during sleep or rest are more common at home. Activities such as cooking and cleaning do not occur in institutions (Figure 3). A substantial portion of activities remains undefined in the registry (67.4% of home falls and 72.5% of falls in residential institutions).

Falls at home occur on the same level in 48.5% of cases, from a height in 17.5%, on stairs in 11.8%, and for 22.3% the precise location was unspecified.

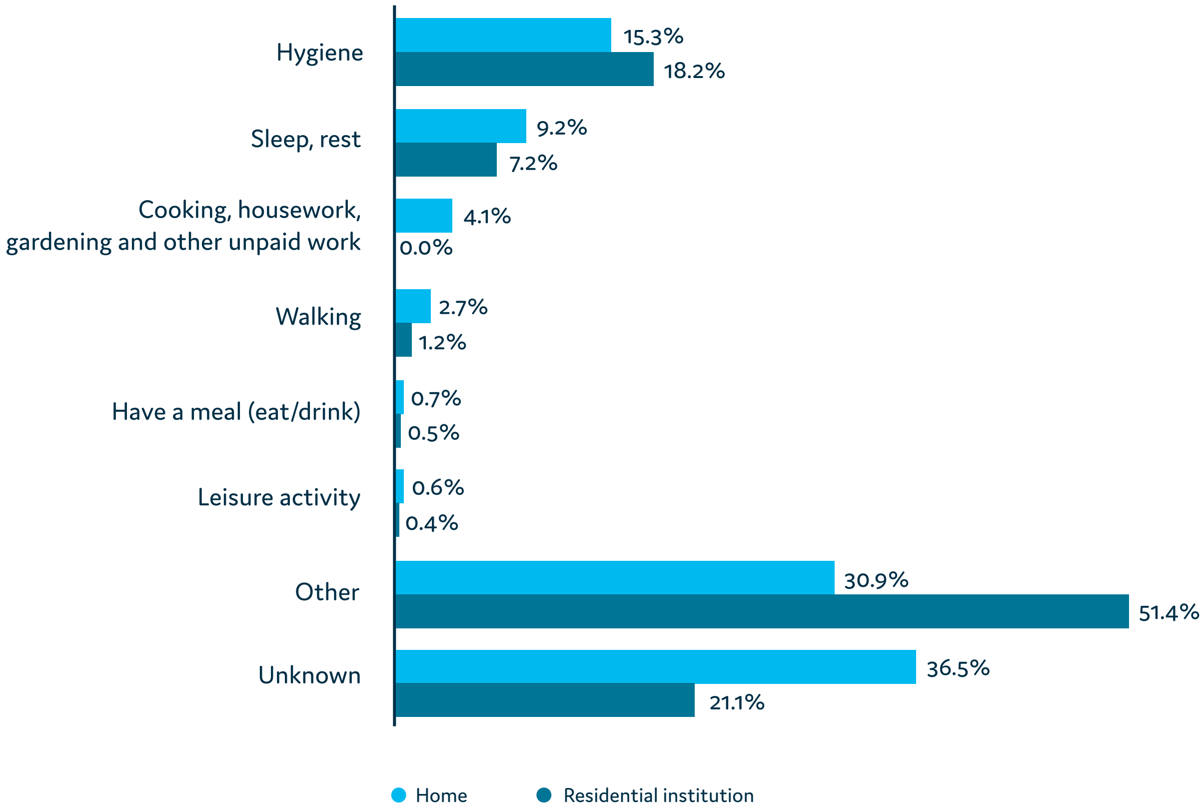

Figure 3 – Activities at the time of falls among people aged 70 and over, occurring at home (N = 3 570) or in residential institutions (N = 767), 2013–2020
Source: RETRACE (Data from CHL only)

Comparison with countries in the IDB Network

The European Injury Data Base (EU-IDB) [4] provides comprehensive data on cases of unintentional, intentional, or undetermined injuries among people aged 70 and over for the period 2013–2020. According to these data, the average injury incidence rate in EU-IDB member countries is estimated at 106.6 per 1 000 inhabitants, compared with 113.7 per 1 000 in Luxembourg (Figure 4).

Overall, there is a North-South gradient in injury incidence among people aged 70 and over, with relatively lower incidence rates in Northern European countries participating in the IDB network.
As in Luxembourg, falls are the leading cause of injury among people aged 70 and over in all 23 countries in the network (75.7% of injuries in Germany, 73.7% in the Netherlands).

The average hospitalisation rate following injury is 24.6%, similar to that in Luxembourg. It should be noted that hospitalisation rates vary considerably between IDB countries, as they strongly depend on the organisation of the healthcare system and on data collection practices.

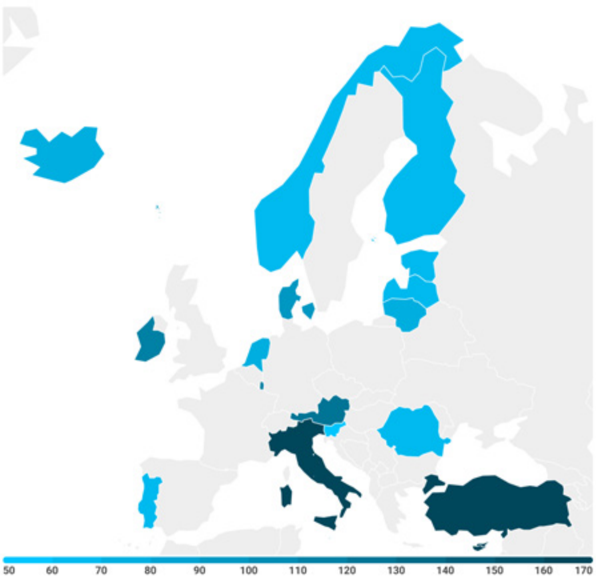

Figure 4 – Incidence rate (per 1 000) of injury among people aged 70 and over in EU-IDB member countries, 2013–2020
Source : European Injury Database (EU-IDB), 2013-2020

Prevention strategies

Preventing falls in older adults is crucial due to both the immediate consequences (injury) and the medium-term effects, which can lead to a significant reduction in quality of life for up to nine months after the injury, as well as high costs associated with the resulting injuries [5]. The consequences of a fall may include reduced autonomy, limited mobility, loss of self-confidence, and impaired quality of life [6]. In severe cases, falls can lead to post-fall syndrome, characterised by a strong fear of falling again, resulting in decreased daily activity, social isolation, and physical deconditioning [7].

Falls result from a complex interaction of factors described as intrinsic (e.g., medical conditions, adverse effects of medications), extrinsic (environmental hazards), or situational (distraction, rushing, etc.).

Healthcare professionals are on the front line for assessing fall risks and implementing personalised, multifactorial interventions [8–10].

Several fall prevention measures can be recommended:

- home modifications
- review of medications to reduce adverse effects, particularly due to polypharmacy
- tailored physical exercise, focusing on balance training and muscle strengthening

The use of the PRISMA-7 score (Program of Research on Integration of Services for the Maintenance of Autonomy) or the ISAR questionnaire (Identification of Seniors at Risk) is recommended in Luxembourg to screen for frailty in patients aged over 75 presenting to emergency departments [11, 12].

More specifically, the European Geriatric Society recommends tests such as the Timed Up and Go (TUG) to assess walking speed and a cognitive evaluation to identify fall risk in people aged 65 and over. Medications that increase fall risk can be identified using tools such as *STOPPFall (Screening Tool of Older Persons' Prescriptions in older adults with high fall risk)* or *STOPP/START (Screening Tool of Older Person's Prescriptions / Screening Tool to Alert doctors to Right Treatment).* These tools support prescription decisions and medication reviews [13, 14].

Conclusions

With the aging population, it is essential to improve fall prevention in older adults. Tools are available to help healthcare professionals identify risks and act effectively. To better target preventive measures, it is crucial to understand the circumstances in which falls occur among people aged 70 and over. Future analyses will focus on this objective.

For more information

To learn more about injuries in Luxembourg:

• "Rapport sur les tendances des Traumatismes et Accidents au Luxembourg - Analyse des données 2013–2020 des urgences hospitalières RETRACE et du Registre des causes de décès", available online here or by scanning the QR code at the bottom left of this page.
• Infographic - "Falls Are the Leading Cause of Accidents Among People Aged 70 and Over", available online in Luxembourgish, French, English, and German.

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